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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,761	11/03/2003	Sandeep Kumar Gupta	TERANETICS-1001-1-US	4249

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EXAMINER	
SINGH, RAMNANDAN P	
ART UNIT	PAPER NUMBER
2614	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/699,761	GUPTA ET AL.	
	Examiner	Art Unit	
	Ramnandan Singh	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date Nov. 03, 2003.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Claim 32 recites "A server comprising a full duplex transceiver" in line 1. The "server" is not shown. Claim 33 recites "A LAN system comprising full duplex" in line 1. The "LAN system" is not shown. Therefore, the features containing "server" and "LAN system" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the

several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 33 is objected to because of the following informalities:

(a) Claim 33 recites "A LAN system" in line 1. The use of the acronym "LAN" is improper. The full word for "LAN" must be spelled out.

(b) Claim 33 recites "A LAN system comprising full duplex transceiver" in line 1. This is in error. Replace the term "full duplex transceiver" with the term "a full duplex transceiver".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 2 recites the limitation, "wherein each sample and hold circuit additionally receives a **replica signal**" in lines 1-2. The disclosure does not disclose how this "replica signal" is generated to additionally supply this signal to each sample and hold circuit. In absence of this, one of ordinary skill in the art will not be able to make and/or use the invention without undue experimentation [see MPEP 2164.01 (8th Edition)].

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recite the limitation "combining the versions of the far end signal" in lines 1-2. It is unclear what the versions of the far end signal are. The disclosure does not define "the versions of the far end signal". For this Office action, Examiner considers "the versions of the far end signal" as samples of the far-end signal.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-6, 8-11, 16-17, 20, 24-27, 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang [US 4,811,342].

Regarding claim 1, Huang discloses a full duplex transceiver for transmitting and receiving communication signals shown in Fig. 1 [col. Col. 2, line 65 to col. 3, line 17], the transceiver comprising:

1 to N sample and hold circuits (i.e. 92, 94, 96 and 98 S/H circuits), each sample and hold circuit receiving a first signal comprising a far-end signal, wherein N is 4, but not a limiting factor [Fig. 2; col. 3, line 54 to col. 5, line 33]; and

a plurality of subtraction circuits, each subtraction circuit (i.e. inverting amplifier 120 in conjunction with an analog switch) receiving an output of at least one of the sample and hold circuits by selectively closing analog switches 80, 82, 84 and 86, each subtraction circuit subtracting at least a fraction of a replica signal from at least a fraction of the output of the at least one of the sample and hold circuits [col. 6, lines 14-33], wherein the subtraction circuit (120) separately functions for each S/H circuit when a particular analog switch closes [Figs. 1-4; col. 5, line 34 to col. 6, line 68; Abstract].

Claim 16 is essentially similar to claim 1 and is rejected for the reasons stated above.

Claim 31 is essentially similar to claim 1 except for a network line card. Huang further discloses the transceiver having the high speed echo canceller for local telephone loop circuits and the like which utilizes analog technology in order to allow for integration into an integrated circuit (i.e. card).

Claim 32 is essentially similar to claim 1 except for a server comprising a full duplex transceiver. However, it may be noted that the server provides an intended use of the transceiver of Huang.

Claim 33 is essentially similar to claim 1 except for a LAN system comprising a full duplex transceiver. However, it may be noted that the LAN system provides an intended use of the transceiver of Huang.

Regarding claim 2, Huang further discloses the full duplex transceiver, wherein each sample and hold circuit additionally receives a replica signal shown in Fig. 2, referral 26, and each subtraction circuit

receives a sample and hold replica signal from an output of a corresponding sample and hold circuit [Fig. 2; col. 6, lines 14-33].

Regarding claim 3, Huang further discloses the full duplex transceiver, wherein each subtraction circuit receives at least one of N replica signals, the replica signals having a replica signal frequency that is lower than a signal frequency of the first signal [Figs. 2-4; col. 7, lines 31-45].

Regarding claim 4, Huang further discloses the full duplex transceiver, wherein the output of the at least one sample and hold circuits is subjected to analog processing before being received by the subtraction circuit [Fig. 2; col. 4, lines 28-37].

Regarding claim 5, Huang further discloses the full duplex transceiver, wherein the replica signal is subjected to analog processing before being received by the subtraction circuit [Fig. 2; col. 4, lines 28-37].

Regarding claim 6, Huang further discloses the full duplex transceiver, wherein the first signal comprises the far-end signal, and an echo signal [Fig. 2; referral 26; col. 4, lines 22-24].

Claim 17 is essentially similar to claim 6 and is rejected for the reasons stated above.

Regarding claim 8, Huang further discloses the full duplex transceiver, wherein the ith sample and hold circuit receives an ith clock signal. [Figs. 2-4; col. 6, lines 1-13].

Claim 24 is essentially similar to claim 8 and is rejected for the reasons stated above.

Regarding claims 9-11 and 25-27, the limitations are shown above.

Regarding claim 20, Huang further discloses the method of receiving samples of a far-end signal shown in Fig. 2 [col. 3, line 54 to col. 4, line 41].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 7, 12-15, 18, 19, 21-23, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang as applied to claim 1 above, and further in view of Agazzi et al [US 20010035994 A1].

Regarding claim 7, although Huang teaches an echo canceller [Fig. 1], he does not teach expressly a first signal containing cross-talk signals.

Agazzi et al teach high speed communications for a full duplex transceiver [Fig. 21] having sample and hold circuits [Fig. 15] [Para: 0101; 0121 to use a cross-talk canceller to cancel cross-talk signals [Para: 0129].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Agazzi et al with Huang in order to cancel signal interference due to the presence of cross-

talk signals induced in a full duplex transceiver having parallel transmit/receive wires or cables [Agazzi et al; Para: 0010].

Claims 15, 18 are essentially similar to claim 7 and are rejected for the reasons stated above.

Regarding claim 12, Agazzi et al further the full duplex transceiver, wherein output signals of the subtraction circuits are received by analog to digital converters (ADC)s, the ADCs generating a digital output representing the far end signal [Figs. 5, 23; Para: 0061-0067].

Claim 28 is essentially similar to claim 12 and is rejected for the reasons stated above.

Regarding claim 13, Agazzi et al further the full duplex transceiver, wherein an ith ADC receives the ith clock signal [Fig. 5; time-recovery 96; Para: 0064-0067].

Claim 29 is essentially similar to claim 13 and is rejected for the reasons stated above.

Regarding claim 14, Agazzi et al further the full duplex transceiver, comprising a clock generation circuitry, the clock generation circuitry generating N clock signals, wherein a phase of the clock signals are spaced apart from each other by approximately (360/N) degrees [Figs. 15-17; Para: 0101; 0106].

Claim 30 is essentially similar to claim 14 and is rejected for the reasons stated above.

Regarding claim 19, the combination of Huang and Agazzi et al further teach the method of receiving a far end signal, wherein echo canceller (16) [Fig. 1] of Huang and cross-talk canceller of Agazzi et al [Para: 0129) cancel both the echo signal and the cross-talk signals of the far-end signal constituting a first signal.

Regarding claim 21 , Agazzi et al further the method of receiving a far end signal, wherein the sampling and holding is driven by a clock frequency of Fs/N, where Fs is a frequency greater than twice the frequency of the highest frequency component of the far end signal [Fig. 15; Para: 0101-0106].

Regarding claim 22 , Agazzi et al further the method of receiving a far end signal, comprising: programmably controlling an amplitude of the far end signals [Fig. 5; element 92].

Regarding claim 23 , Agazzi et al further the method of receiving a far end signal, comprising: generating digital samples of analog versions of the far end signal (ADC) [Figs. 5, 23].

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Martin et al [US 6,518,800 B1]a method for synchronizing a high speed sample and hold circuit which comprises a plurality of sample and hold sub-circuits in parallel between an input and an output [Whole document].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh
Examiner
Art Unit 2614